REMARKS

By the above actions, the specification and claims 1-4, 7, 10-14, and 16 have been amended, and a new claim 17 presented (the second alternative of original claim 3 being transferred to claim 17). Additionally, appended hereto are 4 replacement sheets of drawings. In view of these actions and the following remarks, reconsideration of this application is now requested.

With regard to the Examiner's requirement for a new declaration, the determination that the Declaration filed is defective and the requirement for a new Declaration are totally inappropriate. That is, if the Examiner will review the Declaration form, he will see that it is an official PTO form which has no place for the data that he believes needs to be on it, and that this form is for use with an Application Data Sheet. Furthermore, if the Examiner will review the file he will find that an Application Data Sheet has been submitted which contains the data in question. Lastly, the Examiner's attention is directed to 37 CFR § 1.63(c) and his own quotation from the MPEP, both of which indicate that the inventor residence information can be provided by way of an Application Data Sheet instead of via the Declaration. Thus, since the applicant's residence address was provided by way of an Application Data Sheet, no new Declaration should be required and the Examiner's objection and requirement should now be withdrawn.

Likewise, the Examiner's determination that the Information Disclosure Statement filed in this case is defective and has not been considered due to the absence of a translation of the foreign language references submitted. However, the rules do not require the submission of a translation when one is not available and they only require that an English language statement of relevance be provided; see, 37CFR § 1.98(a)(3)(1) and such a statement of relevance is permitted to be incorporated into the specification instead of the Disclosure Statement. In this case, the relevance of the submitted foreign language references can be found in paragraphs [0006] and [0017] of the specification. Therefore, the Examiner should have considered the two German language references filed with applicants' Information Disclosure Statement and he is now requested to do so and to make these references official of record, a new form 1449 being provided for the Examiner's convenience in doing so.

The Examiner's objections with respect to the drawings have been noted and the appended replacement sheets of drawings together with the correction to paragraph [0019] of the specification make the required corrections. Therefore, withdrawal of the objections to the drawings is now in order and is hereby requested.

The points noted by the Examiner in his objections to the specification have all been fully address above. Likewise, the abstract has been amended to be under the 150 word maximum,

With respect to the Examiner's objections and § 112 rejection of the claims for indefiniteness, each of the deficiencies noted by the Examiner has been addressed via the above amendments. Therefore, the objections and § 112 rejection should now be withdrawn.

Before turning to the Examiner's prior art rejections, it is noted that claims 6, 10, 14, & 15 have not been rejected on the basis of prior art and all of the prior art rejections were made only "as best understood." Thus, with the correction of the areas of indefiniteness and other informalities, presumably claims 6, 10, 14, & 15 will now be found to be allowable. Likewise, now that the areas of indefiniteness have been corrected, it should be apparent from the following explanation of the invention and the manner it which it differs from what is taught by the prior art, that the claims as now presented are neither anticipated nor rendered obvious by the prior art

As for the prior art rejections, firstly, claims 1, 2, 9, 11-13 and 16 stand rejected under 35 U.S.C. § 102 as being anticipated by the disclosure of the Haynes patent. However, the invention as defined by the claims as now presented is not anticipated by the disclosure of the Haynes patent for the following reasons.

The invention relates to an electrical transducer using a two-wire process, with an analog sensor, an analog end stage which is connected downstream of the sensor and a processor circuit. These electrical transducers usually have a microprocessor as the processor circuit, and these processor circuits can process only digital information. Therefore, it is necessary for the electrical transducer or the microprocessor to have at least one analog/digital converter and at least one digital/analog converter. The transmission path of these electrical transducers includes an analog sensor, an analog/digital converter, the microprocessor, a digital/analog converter and an analog end stage.

With reference to paragraphs [0002] to [0005], it has been pointed out how these electrical transducers using the two-wire process, the problem is now that, in the least favorable case, only 4 mA is available as a power supply to all electronic components. It follows that conventional, economical microprocessors can be operated only with a short cycle time in order to achieve the required low power consumption of the microprocessor. However, this results in that, with one such electrical transducer, only relatively slow changes of the quantity to be measured can be detected.

Therefore, modern electrical transducers face the conflict between the requirements for processing speed (which is associated with high power consumption), on the one hand, and the power demand of the circuit components, on the other hand. It is in this context that an object of the invention is to make available an electrical transducer, which solves the above-mentioned conflict and which has low power consumption and still ensures high response speed; see, paragraph [0007], page 4.

To reduce the power consumption of the processor circuit, which generally has a microprocessor, in the electrical transducer of the invention, in normal operation, the processor, **circuit** of the transducer is temporarily shifted into the sleep mode. If the activity time of the processor circuit, i.e., the time during which the processor circuit is not in the sleep mode, but in the awake mode, is much shorter than the time in which the processor circuit remains in the sleep mode, the power consumption of the processor circuit can be limited by the selected measure on the average to a fraction of the nonstop consumption.

Due to the above described measure of shifting the processor circuit in normal operation of the transducer temporarily into the sleep mode, the power consumption of the processor circuit can be reduced to the required value, but this measure leads, at the same time, to the fact that the analog/digital converter connected upstream of the processor circuit or the downstream digital/analog converter cannot be active when the processor circuit is in the sleep mode. In the initially described transmission path of sensor, analog/digital converter, microprocessor, digital/analog converter, analog end stage, this would lead to the electrical transducer not being able to follow the change in the quantity which is to be measured with the desired response speed.

Therefore, **an analog scaling unit is inserted in th analog measurement signal transmission path**, to which unit the output signal of the sensor and the at least one analog

setting value are supplied. This results in that the output signal of the sensor is routed not only past the processor circuit, specifically via the analog measurement signal transmission path, but also **scaling of the electrical transducer by the analog scaling unit is possible.** Applying an analog adjustment value to the analog scaling unit ensures that the analog adjustment value remains unchanged even during the sleep mode of the processor circuit.

With the foregoing in mind, the differences between the disclosure of the Haynes patent and the present invention can be seen. That is, Haynes discloses a two-wire ultrasonic transmitter, which senses the level of a material and controls current of power supplied thereto to a magnitude representing the sensed level. The transmitter comprises a transducer, a drive circuit, an amplifier circuit, a detector circuit, a control circuit and a processor circuit. The drive circuit periodically energizes the transducer to transmit an energy pulse to be reflected off a surface of the sensed material. The amplifier circuit is connected to the transducer and includes amplifier means for developing an analog signal having a magnitude corresponding to reflected energy received by the transducer. In order to reduce the power consumption of the known transmitter, the **transmitter** – not only the processor – is shifted temporarily into a sleep mode. This can be seen from the following statement in column 14, line 51 to 58:

> Thus, there is disclosed herein an ultrasonic through air transmitter which is normally operable in a sleep mode by disabling power to an amplifier circuit and disabling a comparator circuit to conserve power and energize such circuits only as necessary to sense a return echo signal. Further, the duty cycle of the operation of the amplification circuit is continually optimized to further minimize power consumption.

In contrast to the electrical transducer defined by amended claim 1, in this known ultrasonic transmitter, the processor circuit is connected serially between the transducer and the end stage. Therefore an analog measurement signal transmission path as required by amended claim 1 is **not** realized.

As a result, during the time the transmitter operates in a sleep mode, the transmitter is not able to follow a change of the level, which is to be measured. For the ultrasonic transmitter disclosed by Haynes, this does not cause any problem because, with an ultrasonic through air transmitter, a minimum time duration commences subsequent to energization of the transducer and terminates after receipt of a return echo pulse. During this time period, the

known transmitter can be shifted temporarily into a sleep mode without a reduction in response. This can be seen from column 9, lines 44 to 52, where it is state that:

> In order to minimize consumption of power, the transmitter 10 is configured to normally operate in a sleep mode as by disabling the amplifier circuit 52 when it is not necessary for operation and awakening the amplifier circuit 52 when necessary. In order to further minimize power consumption, the "window" of time during which the amplifier circuit is energized is kept to a minimum and centered about an expected receive time for a return echo."

Therefore, there is no reason, motivation or suggestion in the Haynes reference to realize an electrical transducer comprising an analog measurement signal transmission path including an analog scaling unit as described in the amended claim 1. Accordingly, Haynes is not anticipative of the present invention and the § 102 rejection based on this reference should be withdrawn, and such action is now requested.

Claims 3 & 4 have been rejected under 35 U.S.C. § 103 as being unpatentable over the disclosure of the Haynes patent when viewed in combination with the Li patent. Firstly, simply because a first type of transducer is used for one purpose in a particular way does not make it obvious to use a second type of transducer that is used in a different way for different purpose in the manner of the first type of transducer. As such, Li's use of an acceleration measuring transducer for monitoring vibration in rotating or reciprocating machines provides no reason for one of ordinary skill in the art to apply his teachings to an ultrasonic transmitter for level sensing. Moreover, even if this illogical combination were made as proposed by the Examiner, the fact would remain that nothing in the Li disclosure would overcome the shortcomings of the Haynes patent relative to the present invention that have been described above. Therefore, this rejection under § 103 should also be withdrawn.

Claims 5, 7, and 8 stand rejected under 35 U.S.C. § 103 as being unpatentable over the disclosure of the Haynes patent when viewed in combination with the Dhyanchand et al. patent. However, the Chantelle is directed to solving a problem associated with switching on transistors while a freewheeling diode is conductive and there is nothing to indicate that such a problem has any relevance to Haynes' ultrasonic transducer when used for his purposes. Thus, it is not seen where one of ordinary skill would find it obvious to make the modification proposed by the Examiner. However, even if the teachings of the Dhyanchand et al. patent were applied to the Haynes device, there is nothing in the Dhyanchand et al.

patent would overcome the shortcomings of the Haynes patent noted above relative to the rejection under § 102. Accordingly, withdrawal of this rejection is also requested.

The prior art that has been cited, but not applied by the Examiner has been taken into consideration during formulation of this response. However, since this art was not considered by the Examiner to be of sufficient relevance to apply against any of the claims, no detailed comments thereon are believed to be warranted at this time.

While the present application is now believed to be in condition for allowance, should the Examiner find some issue to remain unresolved, or should any new issues arise, which could be eliminated through discussions with applicant's representative, then the Examiner is invited to contact the undersigned by telephone in order that the further prosecution of this application can thereby be expedited.

Lastly, it is noted that a separate Extension of Time Petition accompanies this response along with payment of the requisite extension of time fee. However, should that petition become separated from this Amendment, then this Amendment should be construed as containing such a petition and the required payment applied to Deposit Account No. 192380 (740116-358).

Respectfully submitted,

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